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Research Paper

Characterization of farming system in south Gujarat agro climatic zone of Gujarat

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ABSTRACT : Several Integrated Farming Systems were observed under rain fed as well as irrigated situation in Bharuch and Surat districts of South Gujarat through survey conducted in 144 households through multistage random sampling technique. The study was pertaining the data of the year 2009-10. Besides this, number of constraints were seen which were faced by the farmers to carry out the systems. The highest per cent of peoples are engaged in sugarcane based farming system with recording 40.28 per cent whereas, lowest in live stock based with having only 1.39 per cent.

KEY WORDS : Integrated farming systems, Production constraints, Returns

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INTRODUCTION :

Farm economic efficiency is an important factor of productivity and growth, where resources are scarce and opportunities for developing and adopting better technologies have lately started declining. Several researchers have suggested farming system as an approach for meeting the multiple objectives of poverty reduction, food security, competitiveness and sustainability (Norman, 1978). The system approach emphasizes the need to view the farm situation as a whole and not in compartmentalized manner. A farming system is the result of complex interactions among a number of interdependent components. To achieve it, a farmer allocates certain quantities and qualities of land, labour, capital and management *i.e.* the four factors of production to which he has an access. An alternative farming system, which yields not only higher income but also utilizes family labour efficiently, needs to be evolved. Further, the system should help in restoration of ecological balance. The basic aim of integrated/ sustainable farming system is to derive a set of resource development, management and utilization practices that lead to a substantial and sustained increase in agricultural production. Since farming systems differ in different situations such studies should be location specific (Singh, 1998).

The present study attempts to evaluate the economics and sustainability of different farming systems and to suggest optimum farming system for realizing higher income and ensuring environmental security.

MATERIALS AND METHODS :

Survey on characterization of farming system was carried out in Bharuch and Surat districts of agro climatic region of South Gujarat. Using the stratified random

sampling technique and following the proportional allocation method, 144 farmers belonging to the size groups, based on the size of operational holding *viz.*, marginal (upto 1.00 ha), small (1-2 ha), medium (2-4 ha) and large (above 4 ha) were selected from two districts. The data on socio-economic parameters, existing farming system, economics of different enterprises, farm constraints etc. were obtained in pre-tested schedules by personally interviewing the selected farmers. The study was pertaining the data of the year 2009-10.

RESULTS AND DATA ANALYSIS :

The survey revealed that out of 144 farmers, report in Table 1 selected farmers according to their land holding were categorized as Marginal farmers (48 numbers), Small farmers (48 numbers), Medium farmers (24 numbers) and large farmers (24 numbers).

The distribution of selected farmers under study engaged in various farming system according to their percentage is depicted in Table 2. It can be seen that

Table 1: Details information regarding selected farmers of South Gujarat Agro climatic zone **(n=144)**

Name of district	Name of Taluka	Name of village	Categories of farmers				Total farmers
			Marginal	Small	Medium	Large	
Bharuch	Valiya	Daheli	4	4	2	2	12
		Valiya	4	4	2	2	12
		Mera	4	4	2	2	12
	Ankleshwar	Motvan	4	4	2	2	12
		Piludra	4	4	2	2	12
		Naugama	4	4	2	2	12
		Sub total	24	24	12	12	72
Surat	Mangrol	Vasravi	4	4	2	2	12
		Isanpur	4	4	2	2	12
		Ambawadi	4	4	2	2	12
	Palsana	Gamdod	4	4	2	2	12
		Amalsadi	4	4	2	2	12
		Kanav	4	4	2	2	12
		Sub total	24	24	12	12	72
		Grand total	48	48	24	24	144

Table 2 : Distribution of farming system in per cent among south Gujarat Agro climatic zone **(n=144)**

Farming systems	Marginal	Small	Medium	Large	Total
Cereal based	47.92	18.75	16.67	12.50	27.08
Pulse based	6.25	10.42	12.50	8.33	9.03
Sugarcane based	20.83	39.58	54.17	66.67	40.28
Livestock based	4.17	0.0	0.0	0.0	1.39
Cotton based	4.17	18.75	4.17	8.33	9.72
Fruit-veg based	16.66	12.50	12.50	4.17	12.50
Total	100.0	100.0	100.0	100.0	100.0
Sample size	48	48	24	24	144

Table 3: Distribution of farming system according gross income in south Gujarat Agro climatic zone **(n=144)**

Farming systems	Source of income								
	PO	LS	CT	SC	CL	SP	PLTY	VF	Total
Cereal based	15.56	10.24	9.78	9.78	47.02	0.0	0.0	7.36	100.0
Pulse based	44.09	9.07	19.83	4.75	22.26	0.0	0.0	0.0	100.0
Sugarcane based	6.47	4.02	5.89	54.18	9.48	0.0	0.15	19.81	100.0
Livestock based	0.0	58.18	0.0	0.0	14.55	0.0	0.0	27.27	100.0
Cotton based	16.90	7.08	52.07	1.14	13.67	0.0	0.0	9.14	100.0
Fruit-veg based	0.0	5.32	0.86	32.36	5.55	0.0	0.86	55.06	100.0

Table 4 : Predominant farming systems in south Gujarat Agro climatic zone **(n=144)**

Farming systems	Marginal	Small	Medium	Large	All
Cereal	8.33	0.0	0.0	0.0	2.78
Cereal + Pulse	8.33	0.0	8.33	0.0	4.17
Cereal + Sugarcane + Veg.	10.42	6.25	4.17	8.33	7.64
Cereal + Pulse + Livestock	10.42	4.17	0.0	0.0	4.86
Cereal + Pulse+ Cotton + Livestock	2.08	4.17	4.17	4.17	3.47
Cereal + Livestock	8.33	4.17	0.0	0.0	4.17
Cereal based	47.92	18.75	16.67	12.50	27.08
Pulse + Cereal	2.08	4.17	4.17	4.17	3.47
Pulse + Cereal+ Livestock	0.0	6.25	4.17	0.0	2.78
Pulse + Cereal +Cotton + Livestock	4.17	0.0	4.16	4.16	2.78
Pulse based	6.25	10.42	12.50	8.33	9.03
Sugarcane	4.17	6.25	4.17	0.0	4.17
Sugarcane +Pulse + Livestock	2.08	4.17	4.17	0.0	2.78
Sugarcane + Pulse	2.08	8.33	16.67	16.67	9.03
Sugarcane +Cereal	4.17	0.0	4.17	4.17	2.78
Sugarcane + Livestock	2.08	4.17	0.0	0.0	2.08
Sugarcane + Fruit	2.08	8.33	12.50	29.16	10.41
Sugarcane + Veg.	4.17	8.33	8.33	4.17	6.25
Sugarcane + Cereal + Cotton + Veg	0.0	0.0	4.16	12.50	2.78
Sugarcane based	20.83	39.58	54.17	66.67	40.28
Livestock + Cereal	2.08	0.0	0.0	0.0	0.69
Livestock + Veg.	2.09	0.0	0.0	0.0	0.70
Livestock based	4.17	0.0	0.0	0.0	1.39
Cotton based	2.08	2.08	4.17	4.17	2.78
Cotton + Pulse + Liv.	2.09	10.42	0.0	0.0	4.17
Cotton + cereal + pulse + livestock	0.0	6.25	0.0	4.16	2.77
Cotton based	4.17	18.75	4.17	8.33	9.72
Fruit + Sugarcane	2.08	4.17	4.17	0.0	2.78
Fruit + Sugarcane + Livestock	0.0	0.0	4.17	4.17	1.39
Vegetable + Sugarcane	4.17	6.25	4.16	0.0	4.17
Vegetable + Cereal	4.17	2.08	0.0	0.0	2.08
Veg. + Livestock	6.25	0.0	0.0	0.0	2.08
Fruit-Veg based	16.67	12.50	12.50	4.17	12.50
Total	100.0	100.0	100.0	100.0	100.0
Sample size	48	48	24	24	144

40.28 per cent of the selected farmers were engaged with sugarcane based farming system followed by 27.08 per cent engaged in cereal based farming system. The lowest numbers of farmer's people were engaged in live stock based farming system (1.39 %).

The distribution of selected farmers under study engaged in various farming system according to their gross income is depicted in Table 3. It can be observed that the farmers of cereal based farming system are getting highest (47.02 %) of gross returns from pulse and livestock. Similarly, farmers of pulse based farming system are getting highest returns (44.09%). The farmers engaged in sugarcane farming system are getting gross return 54.18 per cent from sugarcane followed by fruit-vegetable farming system.

The predominant cereal, pulse, sugarcane, livestock, cotton and fruit vegetable farming systems were recorded in the area (Table 4). The highest per cent of peoples are engaged in sugarcane based farming system with recording 40.28 per cent whereas, lowest in live stock based with having only 1.39 per cent.

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